

FIG. 1

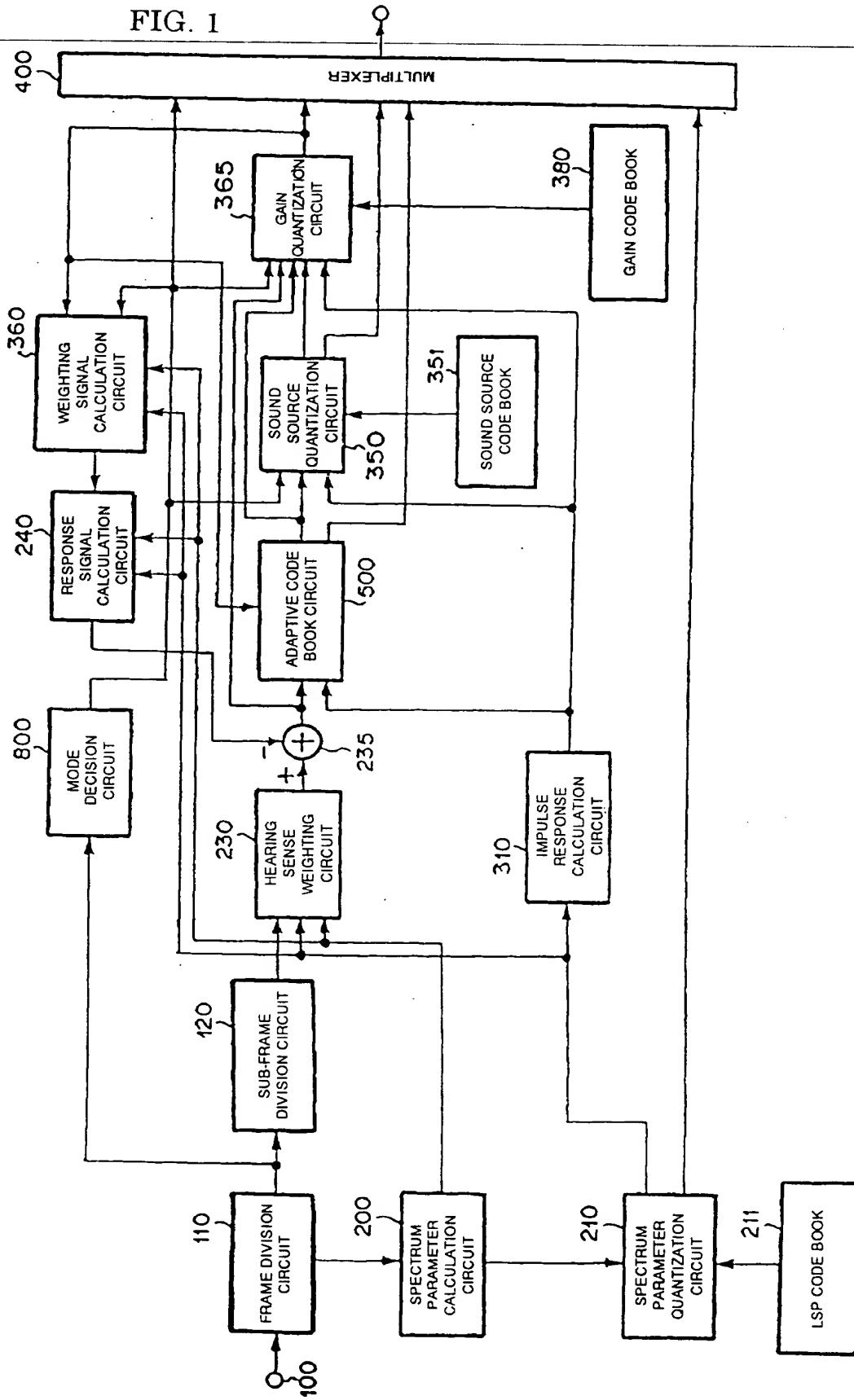


FIG. 2

$$D_s = \sum_{i=1}^{10} W(i) [LSP(i) - QLSP(i)]^2 \quad (1)$$

FIG. 3

$$x_z(n) = d(n) - \sum_{i=1}^{10} \alpha_i d(n-i) + \sum_{i=1}^{10} \alpha_i \gamma^i y(n-i) + \sum_{i=1}^{10} \alpha_i \gamma^i x_z(n-i) \quad (2)$$

where, when  $n - i \leq 0$

$$y(n-i) = p(N + (n-i)) \quad (3)$$

$$x_z(n-i) = s_w(N + (n-i)) \quad (4)$$

FIG. 4

$$x_w(n) = x_w(n) - x_z(n) \quad (5)$$

FIG. 5

$$H_w(z) = \frac{1 - \sum_{i=1}^{10} \alpha_i z^{-i}}{1 - \sum_{i=1}^{10} \alpha_i \gamma^i z^{-i}} \frac{1}{1 - \sum_{i=1}^{10} \alpha_i \gamma^i z^{-i}} \quad (6)$$

FIG. 6

$$D_r = \sum_{n=0}^{N-1} x_w^{-2}(n) - [\sum_{n=0}^{N-1} x_w(n)y_w(n-T)]^2 / [\sum_{n=0}^{N-1} y_w^{-2}(n-T)] \quad (7)$$

where

$$y_w(n-T) = v(n-T) * h_w(n) \quad (8)$$

FIG. 7

$$\beta = \sum_{n=0}^{N-1} x_w(n)y_w(n-T) / \sum_{n=0}^{N-1} y_w^{-2}(n-T) \quad (9)$$

FIG. 8

$$e_w(n) = x_w(n) - \beta v(n-T) * h_w(n) \quad (10)$$

FIG. 9

$$D_k = \sum_{n=0}^{N-1} [e_w(n) - \sum_{i=1}^M g_{ik} h_w(n - m_i)]^2 \quad (11)$$

FIG. 10

$$D_{(k,i)} = \left[ \sum_{n=0}^{N-1} e_w(n) s_{wk}(m_i) \right]^2 / \sum_{n=0}^{N-1} s_{wk}^2(m_i) \quad (12)$$

FIG. 11

$$D_{(k,i)} = \left[ \sum_{n=0}^{N-1} \Phi(n) v_k(n) \right]^2 / \sum_{n=0}^{N-1} s_{wk}^2(m) \quad (13)$$

where

$$\Phi(n) = \sum_{i=n}^{N-1} e_w(i) h_w(i-n), n = 0, \dots, N-1 \quad (14)$$

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FIG. 12

PULSE NUMBER	POSITION
FIRST PULSE	0, 5, 10, 15, 20, 25, 30, 35
SECOND PULSE	1, 6, 11, 16, 21, 26, 31, 36
THIRD PULSE	2, 7, 12, 17, 22, 27, 32, 37
FOURTH PULSE	3, 8, 13, 18, 23, 28, 33, 38
FIFTH PULSE	4, 9, 14, 19, 24, 29, 34, 39

FIG. 13

SHIFT AMOUNT	POSITION
0	0, 4, 8, 12, 16, 20, 24, 28, 32, 36
1	1, 5, 9, 13, 17, 21, 25, 29, 33, 37
2	2, 6, 10, 14, 18, 22, 26, 30, 34, 38
3	3, 7, 11, 15, 19, 23, 27, 31, 35, 39

FIG. 14

$$D_k = \sum_{n=0}^{N-1} [x_w(n) - \beta \cdot v(n-T) * h_w(n) - G \cdot \sum_{i=1}^M g_{ik} h_w(n - m_i)]^2 \quad (15)$$

FIG. 15

$$D_k = \sum_{n=0}^{N-1} [x_w(n) - \beta \cdot v(n-T) * h_w(n) - G \cdot \sum_{i=1}^M g_{ik} h_w(n - m_i - \delta(j))]^2 \quad (16)$$

FIG. 16

$$v(n) = \beta \cdot v(n-T) + G \cdot \sum_{i=1}^M g_{ik} \delta(n - m_i) \quad (17)$$

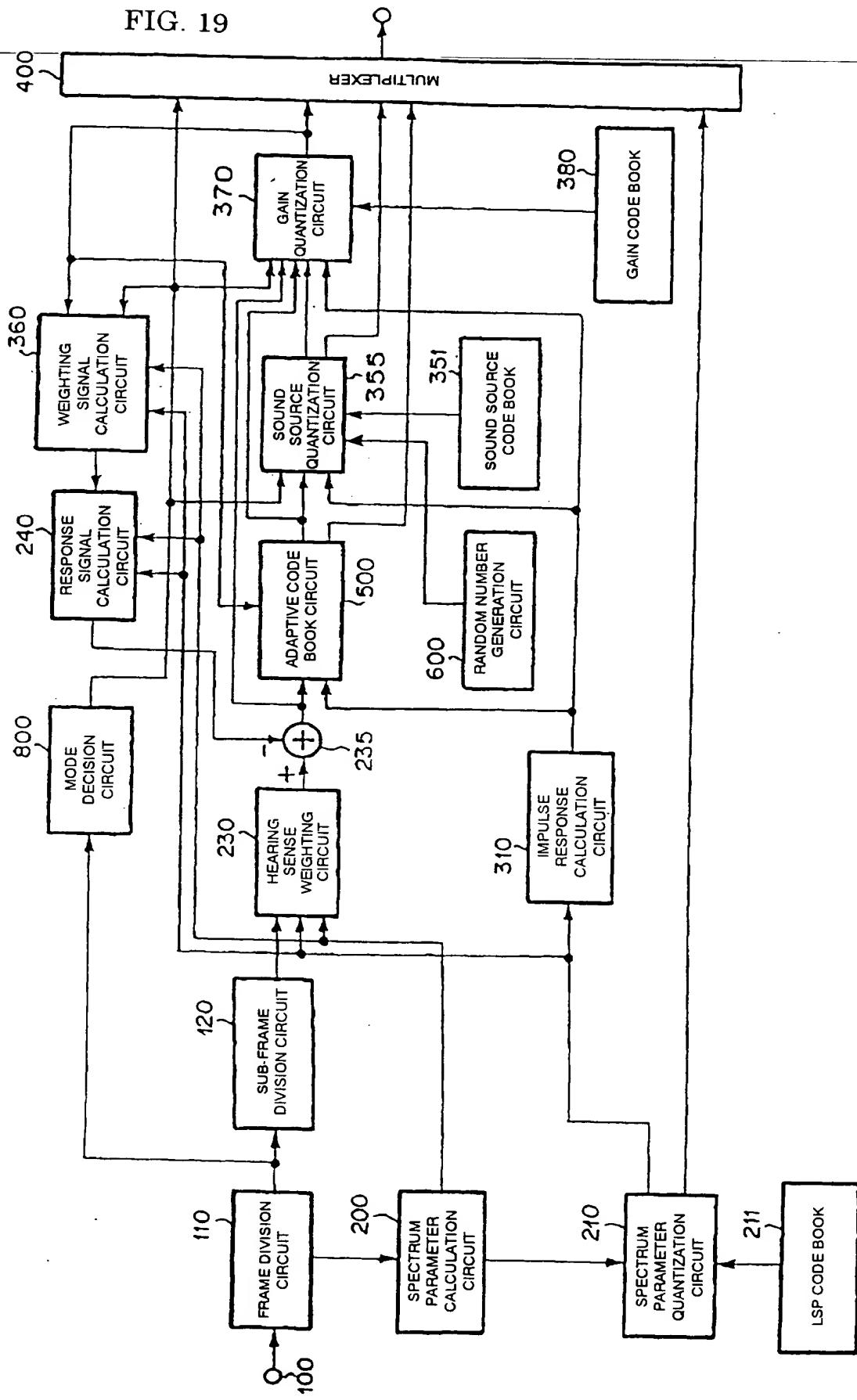
FIG. 17

$$v(n) = \beta \cdot v(n-T) + G \cdot \sum_{i=1}^M g_{ik} \delta(n - m_i - \delta(j)) \quad (18)$$

FIG. 18

$$s_w(n) = v(n) - \sum_{i=1}^{10} \alpha_i v(n-i) + \sum_{i=1}^{10} \alpha_i \gamma^i p(n-i) + \sum_{i=1}^{10} \alpha_i \gamma^i s_w(n-i) \quad (19)$$

FIG. 19



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FIG. 20

$$D_{k,j} = \sum_{n=0}^{N-1} [x_w(n) - \beta_i(n-T) * h_w(n) - G_i \sum_{i=1}^M g_{ik} h_w(n - m_i - \delta(j))]^2 \quad (20)$$

FIG. 21

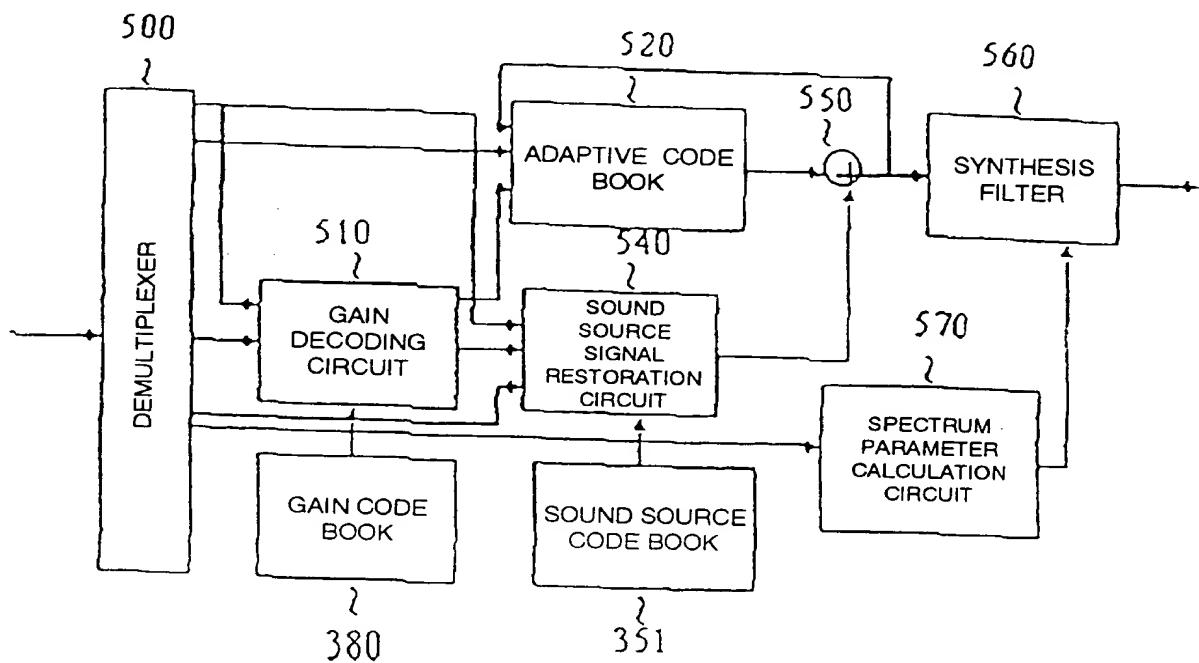


FIG. 22

